

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a	Confirmed
☐	☒ The exact sample size (<i>n</i>) for each experimental group/condition, given as a discrete number and unit of measurement
☐	☒ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☐	☒ The statistical test(s) used AND whether they are one- or two-sided <i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i>
☐	☒ A description of all covariates tested
☐	☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
☐	☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
☐	☒ For null hypothesis testing, the test statistic (e.g. <i>F</i> , <i>t</i> , <i>r</i>) with confidence intervals, effect sizes, degrees of freedom and <i>P</i> value noted <i>Give <i>P</i> values as exact values whenever suitable.</i>
☒	☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☒	☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☒	☐ Estimates of effect sizes (e.g. Cohen's <i>d</i> , Pearson's <i>r</i>), indicating how they were calculated

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

Data collection	n/a
Data analysis	For image analyses, we used the ImageJ software, ver.1.50i (https://imagej.nih.gov/ij/ ; National Institutes of Health, Bethesda, MD, USA). For statistical analyses, we used GraphPad Prism 10.2 (GraphPad Software, California, USA).

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

All data generated in this study are provided in the Supplementary Information. Source data are provided with this paper.

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender	n/a
Reporting on race, ethnicity, or other socially relevant groupings	n/a
Population characteristics	Healthy adults
Recruitment	Volunteers
Ethics oversight	Experiments using human materials were permitted by the Ethics Committee of the Faculty of Health Sciences, Hokkaido University (permission no. 20-40) and performed in accordance with the Declaration of Helsinki.

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☒ Life sciences ☐ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://www.nature.com/documents/nr-reporting-summary-flat.pdf)

Life sciences study design

All studies must disclose on these points even when the disclosure is negative.

Sample size	In the Little's paper (Am J Pathol 174: 1212-1220, 2009), 5 rats per group were examined to establish the MPO-AAV model. We made the sample size as large as possible (n=8/group), which was determined by the specific situation of animal feeding and availability, to ensure the reliability of the results.
Data exclusions	None.
Replication	Experiments were repeated at least twice in vitro.
Randomization	Twenty-four rats were divided into three groups randomly.
Blinding	Data was obtained by objective and quantitative assays.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☐	☒ Antibodies
☐	☒ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☐	☒ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☐	☒ Flow cytometry
☒	☐ MRI-based neuroimaging

Antibodies

Antibodies used	anti-PR3 antibody (clone MCPR3-2, Sigma-Aldrich), rabbit anti-MPO antibody (ab9535, Abcam), rabbit anti-citrullinated histone H3 antibody (ab5103, Abcam), anti-CD15 antibody (clone W6D3, BD Biosciences), fluorescein isothiocyanate-conjugated mouse anti-
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MPO antibody (LS-C140180, LSBio), goat anti-human MPO antibody (AF3667, R&D systems), and anti-rat CD68 antibody (ED-1, Bio-Rad Laboratories).

Validation

Referred to the manufacturer's website of each product.

Eukaryotic cell lines

Policy information about [cell lines and Sex and Gender in Research](#)

Cell line source(s)

Human CD34+ Bone Marrow Stem/Progenitor Cells (Hemacare, Northridge, CA, USA)

Authentication

Referred to the manufacturer's website.

Mycoplasma contamination

Negative for mycoplasma contamination.

Commonly misidentified lines
(See [ICLAC](#) register)

n/a

Animals and other research organisms

Policy information about [studies involving animals](#); [ARRIVE guidelines](#) recommended for reporting animal research, and [Sex and Gender in Research](#)

Laboratory animals

Wistar Kyoto rats.

Wild animals

n/a

Reporting on sex

Male.

Field-collected samples

This study did not involve samples collected from the field.

Ethics oversight

Experiments using rats were permitted by the Animal Experiments Committee of Hokkaido University (permission no. 20-0032) and performed in accordance with the Guidelines for the Care and Use of Laboratory Animals at Hokkaido University.

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Flow Cytometry

Plots

Confirm that:

- ☒ The axis labels state the marker and fluorochrome used (e.g. CD4-FITC).
- ☒ The axis scales are clearly visible. Include numbers along axes only for bottom left plot of group (a 'group' is an analysis of identical markers).
- ☒ All plots are contour plots with outliers or pseudocolor plots.
- ☒ A numerical value for number of cells or percentage (with statistics) is provided.

Methodology

Sample preparation

In vitro differentiated granulocytes prepared using human CD34+ Bone Marrow Stem/Progenitor Cells and rat blood cells after hemolysis were used.

Instrument

BD FACS Verse and Attune NxT

Software

BD FACSuite software and Attune NxT 21 CFR Part 11 Software

Cell population abundance

Whole in vitro differentiated cells and whole rat white blood cells were analyzed.

Gating strategy

Granulocytes were gated in FSC/SSC profile.

- ☒ Tick this box to confirm that a figure exemplifying the gating strategy is provided in the Supplementary Information.